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by

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WORD FORMATION STRATEGIES IN THE HEBREW VERB SYSTEM: DENOMINATIVE VERBS

by

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A hierarchy is suggested for the familiar syntactic and semantic factors determining realization of Hebrew verbs in the particular conjugations. Other considerations apply whenever applicable: no realizations are allowed which would form unpronounceable clusters; realizations preserving the consonant clusters of original nouns are preferred; if a slot is occupied, the semantically-closest conjugation is chosen. To examine these claims, native speakers were asked to themselves innovate denominative verbs, or make judgements about hypothetical verbalizations. The results support the basic semantic/syntactic hierarchy; speakers even invent new devices allowing incorporation of non-syntactic and non-semantic factors without the hierarchy itself being significantly affected.

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1. INTRODUCTION *

When a linguist is introduced to the morphological system of a Semitic language, his first reaction is quite enthusiastic: here is the ultimate productivity in a morphological system! This enthusiasm soon dissipates when he finds out how many exceptions and unaccountable forms the system actually contains.

Obviously, Semitic morphological systems are neither fully regular nor totally irregular. This paper attempts to put the productivity of one aspect of Hebrew morphology in the right perspective—the formation of denominative verbs—and establish a tentative hierarchy of the variety of factors involved. Traditional and recent approaches to Hebrew verb morphology are mentioned first, with particular reference to syntactic and semantic classifications, but it is shown that phonetic and phonological considerations play a role as well. Recent verbalizations are then separately examined, and precedence relations are tentatively established. Finally, the claims for these precedence relations are examined in terms of the behaviour of fifty native speaking subjects when asked to themselves innovate denominative verbs or make judgements about hypothetical verbalizations.

2. TRADITIONAL AND RECENT APPROACHES TO HEBREW VERB MORPHOLOGY

2.1. THE CONJUGATIONS OF THE VERB

When a noun is verbalized in Hebrew, a decision has to be made as to what conjugation of the verb it is to be realized in. Below I briefly review the nature of traditional verb-morphology in Hebrew in terms of the existing conjugations. Hebrew (usually triconsonantal) roots can be realized in one or more of seven morphological verb-patterns or conjugations (*binyanim*)[1] with the following stem forms: *CaCaC*, *ni*+*CCaC*, *CiCeC*, *CuCaC*,

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*I wish to thank Ruth Aronson Berman, Gad Ben-Horin, Daniel Boyarin, Peter Cole, Gabi Hermon, Ora Schwarzwald and Yael Ziv for their valuable comments on this paper.

[1]Native nouns, adjectives etc. also follow morphological patterns (*miškalim*). The difference is, that the number of *miškalim* is far greater than the number of *binyanim*, and while verbs can ONLY be realized in one or more of the seven *binyanim*, borrowed nouns and adjectives are usually introduced as they are, regardless of existing native *miškalim*.

hit+CaCeC, *hi+CCiC*, and *hu+CCaC*. Each of these conjugations has been claimed to either carry its own independent syntactic function, or at least denote a core (or a number of cores) of meaning common to groups of verbs realized in it. Even today school grammars continue to assume roughly the same semantic characterization of the *binyanim* offered for Biblical Hebrew in the Nineteenth century, and to a large extent even by grammarians of the Middle Ages. Below is a list of independent syntactic functions attributed to the *binyanim* in a typical school grammar:

(1)

NAME OF BINYAN	TRADITIONAL SYNTACTIC FUNCTION	EXAMPLES	
paʾal[2]	unmarked base form		
nifʿal	passive of *paʾal*	*nišlax*[3] passive of *šalax*	'be sent' 'send'
piʾel	normally transitive	*sider*	'arrange
puʾal	passive of *piʾel*	*sudar*	'be arranged'
hitpaʾel	middle voice, normally intransitive counterpart of *piʾel* or *paʾal*	*hitlabeš*[4]	'get dressed'
hifʿil	normally transitive	*hixtiv*	'dictate'
hufʿal	passive of *hifʿil*	*huxtav*	'be dictated'

Cores of meaning common to groups of verbs realized in a particular conjugation are usually arranged in a markedness hierarchy, i.e. if more than one core of meaning is noted, the most likely (unmarked) meaning is listed first:

(2)

BINYAN NAME	MEANING	ILLUSTRATIONS	
nifʿal	change of state	*nidlak* vs. *dalak*	'turn on (light, int.)' 'be on (light)'
piʾel	intensified form of *paʾal*	*šiber*	'smash', intensified form of *šavar* 'break'
hitpaʾel	reflexive	*hitraxec*	'wash (oneself)'
	change of state (inchoative)	*hitraxev*	'widen (int.)'
	reciprocal	*hitvakxu*	'they argued'
hifʿil	causative	*higdil*	'enlarge (tr.)'
	change of state (inchoative)	*hichiv*	'become yellow'

Obviously, many variations on this classification may be found, but the classes above seem to be mentioned by ANY school grammar.

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[2]The root *pʿl* (historically *pʿl*) has been used traditionally as a prototype, *p* indicating the first radical of the root, *ʿ* the second, and *l* the third.

[3]Stress is indicated only when not final. All verbs are represented in the morphologically most basic form—Third Person Masc. Sing., Past Tense, unless otherwise specified. Thus, *nišlax* 'be sent' actually means 'he/it was sent' and *sider* 'arrange' actually means 'he arranged'.

[4]For clarity of representation, glottals will be represented in these cases, though phonetically they are not realized before unstressed vowels.

2.2. THE PRODUCTIVITY OF BINYAN MEANING AND SYNTACTIC FUNCTION

Linguists describing Modern Hebrew are aware of the fact that the "independent" syntactic functions of the *binyanim* are still quite productive, though some are more productive than others. The active/passive relationships are very productive in the case of *piʿel/puʿal* and *hifʿil/hufʿal*, but less so in the case of *paʿal/nifʿal*. As far as transitivity is concerned, *nifʿal* and *hitpaʿel* are typically non-transitive—i.e. do not take *ʾet* NP (*ʾet* is the definite object marker); *piʿel* and *hifʿil* are typically transitive; and *paʿal* is neutral in this respect. The only significant change affecting the traditional system in (2) above has been the replacement of *paʿal* by *piʿel* as the productive, unmarked form—which was first noted by Sivan (1963). It is possible that *paʿal* being neutral with respect to transitivity was one of the reasons for its almost ceasing to be productive, though there must have been at least another two reasons for it: the fact that it could not accommodate quadriliterals and quintiliterals, and most of its slots being occupied already. I know of only two recent denominative *paʿal* verbs, one transitive, the other intransitive: *gamaz* 'criticize severely', from *gâmzu* 'proper name of a vitriolic Israeli critic' and *xarap* 'nap' from *xrop* 'nap (N)', from Yiddish. The latter started from *xrop* > *laxrop* 'to nap', owing to phonetic similarity of the noun to the infinitival form, which developed into *xarap* by a sort of back-formation. I also heard *lidrop* 'to drop (a course)' among Israeli students in the States, which may develop through similar back-formation into *darap*. Ora Schwarzwald also reports (personal communication) that in the Hebrew of Israeli kids in the States, one hears *laput* 'to put' and *tinok* 'knock', which behave like "hollow" *paʿal* verbs. So *paʿal* is not yet "dead". Generally in the speech community, however, its productivity is very restricted.

All in all, however, the observations concerning the productivity of the *binyan* syntactic functions are generally true. On the other hand, the productivity of the specialized meanings of the *binyanim* is necessarily restricted, since these specialized meanings characterize limited groups of verbs within each *binyan*. Although there might be some disagreement between Schwarzwald (1975) and Berman (1975b) on HOW minor the redundancy rules expressing these predictions will be, it is generally agreed (cf. primarily Ornan 1971 and Schwarzwald 1975) that predicting meanings of forms on the basis of specialized semantic groups in the *binyanim* is a complicated matter. First of all, as Schwarzwald points out, only 2.3% of listed roots occur in all seven conjugations, and 41% of those are homonymous—i.e. realization of a phonological root in some conjugation may be utterly unrelated semantically to its realization in another conjugation (for instance, *sarat* 'scratch' and *hisrit* 'film'). Furthermore, even among non-homonymous roots, the meaning relations often do not develop as expected (for instance, *hizmin* 'order, invite'—one would hardly expect *hizdamen* to mean 'occur, come by chance', *hitpaʿel* often being reflexive, reciprocal, etc.). Numerous examples like these are cited in the literature on the subject. It would appear that the percentage of verbs one can classify into expected classes is small enough to make the meaning groups quite minor.

What Ornan (1971) concludes from this state of affairs is that semantic productivity is no longer a property of the verb-system, except for the active-passive relationship of *hifʿil/hufʿal* and *piʿel/puʿal*. To the best of my knowledge, this strong version of the non-productivity claim has never been accepted by other linguists describing the Hebrew verb system. There seems to be ample evidence around for at least SOME degree of productivity: recent formation of verbs, mistakes made by children and other learners of the language, and systematic and almost-free innovative capability of adult speakers to express themselves in an original and "creative" manner by readily coining hypothetical verbs (as is evident in the tests reported in this paper), which are comprehended by other speakers with no difficulty at all. What is normally debated is not the very existence of this productivity, but how it should be described, and the description may sometimes be quite subtle, as in the case of Cole's (1976) description of causatives in Hebrew.

Appendix I contains a brief discussion of some recent literature on realization of roots in the different *binyanim*.

3. THE INTERACTION OF FUNCTIONAL, SEMANTIC AND PHONOLOGICAL CONSIDERATIONS IN DENOMINATIVE VERBALIZATION

This paper concentrates on only one aspect of the productivity of the verb system: formation of new verbs from existing nouns and adjectives, whether borrowed or native There are other aspects of productivity—like the realization of roots in *binyanim* in which they had not formerly been used (e.g. *hizrik* 'inject', *hictalem* 'have one's picture taken'), onomatopoeic innovations, (e.g. *tirter* 'make noise', *tiktek* 'tick'), and so on. I will restrict myself to denominative verbs, however, as they constitute the most productive source of new verbs in the language, as Sivan (1963) earlier noted, and because there is usually no question as to the form from which these verbs were originally derived. Note that when realized as verbs, borrowed nouns are subject to the same rules and constraints as native ones—e.g. *bilef* ('lie', from *blof* 'lie (N)', from English *bluff*) ~ *bilfa* 'she lied' ~ *bilāfti* 'I lied', compared with native *mikem* ('place' from *makom* 'place (N)') ~ *mikma* 'she placed' ~ *makāmti* 'I placed'.

Although Sivan and Berman have already introduced most of the factors involved in verb formation, including those determining formation of denominative verbs, neither of them attempted to establish a hierarchy, or priority of importance, among the different types of factors involved.

Obviously, however, the innovator must impose SOME hierarchy on the relevant factors and establish precedence relations. In the rest of the paper I will try to show how these precedence relations are reflected in RECENT verbalizations of nouns and adjectives, and then in productivity tests.

3.1. PRECEDENCE RELATIONS IN RECENT VERBALIZATIONS

3.1.1. The Realization of Most Quadriliteral and Quintiliteral Nouns

Pronounceability seems to be the initial consideration. Thus, verbalization of most quadriliteral or longer nouns would have created an unpronounceable cluster in *hifʾil* (e.g. **hitrpid* from *torpēdo*, **hikftir* from *kaftor* 'button', **hipnčir* from *pānčer* 'puncture, flat tire, mishap'), in *hifʾal* (e.g. **nitrpad*, **nikftar*, **nipnčar*) or in (the future of) *paʾal*[5] (**titrpod*, **tikftor*, **tipnčor*), owing to the basic stem-initial cluster of these *binyanim*, to the fact that the stem-final consonant cannot be expanded into a cluster throughout the verb-stem,[6] and to their stems being monosyllabic. Such nouns can be realized in either *piʾel* (e.g. *kifter*) or *hitpaʾel* (e.g. *hitkafter*). The stems of those, unlike the ones of *hifʾil* and the future of *paʾal*, are disyllabic in their unmarked[7] forms, and more consonants can thus be accommodated. If the verb is transitive, it will be realized in *piʾel*, since *hitpaʾel* is typically intransitive. Thus, *torpēdo* is verbalized as *tirped*,

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[5] *paʾal* has almost ceased to be productive anyway—as explained in 2.2 above.

[6] I am aware of one exception, in child language, viz. *hišvinjg* 'he ran very fast', from *švinjg* 'impetus'. This is due both to *ŋg* functioning like a single segment and to the attempt to preserve as much as possible of the original form of the noun.

[7] That is, without any additional inflectional affixes marking such bound categories as non-third person, non-singular (= plural) number, non-masculine (= feminine) gender.

(3)	*kaʃtor*	'button (N)'	>	*kiʃter*	'button'
	pânčer	'mishap'	>	*pinčer*	'cause a mishap'
	ʾaxzava	'disappointment'	>	*ʾixzev*	'disappoint'

and so on, and each of those will have a parallel passive counterpart in *puʿal* and usually a middle-voice corresponding *hitpaʿel*:

(4)	*kuʃtar*	'be buttoned'	>	*hitkaʃter*	'button up'
	turpad	'be torpedoed'	>	*??hittarped*	'fail (intr.)'
	punčar	'be caused a mishap'	>	*hitpančer*	'fail because of a mishap'
	ʾuxzav	'be disappointed'	>	*hitʾaxzev*	'become disappointed'

The same would apply to most nouns containing four consonants or more which are realized as transitive verbs. If, however, the verb is basically intransitive, without a corresponding transitive and middle voice, it may be realized EITHER as *piʿel* or as *hitpaʿel*, since while the latter is typically intransitive, the former may be either transitive or intransitive. In such cases one must refer to the more specific meanings denoted by groups of verbs within the *binyanim*. Thus, if the noun is to be realized as an independent inchoative, reflexive or reciprocal,[8] the choice is *hitpaʿel*:

(5)	*ʾezrax*	'citizen'	>	*hitʾazrêax*	'become a citizen'
	pirxax	'hoodlum'	>	*hitparxêax*	'become, begin to act like, a hoodlum'
	pulmus	'controversy'	>	*hitpalmes*	'argue about'

For all other intransitive verbs, *piʿel* is chosen:

(6)	*taʃkid*	'job, function'	>	*tiʃked*[9]	'function'
	xantariš	'nonsense'	>	*xintreš*	'speak nonsense'
	têleʃon	'telephone (N)'	>	*tilʃen*	'telephone'

This is the normal procedure for realizing most nouns containing four consonants or more—though not for all of them, as will be seen below.

Note that the generalizations claimed apply to ANY noun or adjective that is verbalized, whether native or borrowed, old or new: old borrowed nouns (*pulmus* 'controversy', Greek), newly borrowed nouns (*torpêdo*, *têleʃon*), native nouns (*taʃkid* 'function', *pirxax* 'hoodlum'), slang nouns, whether borrowed (*xantariš*, Arabic) or native (*hitparper* 'fool around', from *parpar* 'one who fools around', from 'butterfly'). Also, as explained above, once a noun or adjective is verbalized, it behaves like an original verb in every respect, regardless of its source.

3.1.2. Verbalization of Triliteral and Biliteral Nouns and Adjectives

If no phonetic difficulties are involved to start with, transitivity is less useful as a

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[8]Or, of course, if the form can only be realized in *hitpaʿel* because this is the only *binyan* that allows a pronounceable configuration, e.g. the five consonants in *dizengoʃ* (name of street) can only be verbalized as *hizdangeʃ* 'go up and down Dizengoff Street'.

[9]Gad Ben-Horin has pointed out to me that in sports, *tiʃked* may be used transitively, meaning 'assign role (by coach)'.

criterion: *pi'el*, though often transitive, is not always so (e.g. *bilef* 'lie' and *kiter* 'complain' below), and *hif'il*, which is normally transitive too, has a group of intransitive verbs, essentially inchoatives (e.g. *hivrid* 'become pink' and *hišmin* 'become fat' below). Since *pu'al* and *huf'al* do not normally exist independently of corresponding *pi'el* and *hif'il* forms, it is again impossible to choose a *binyan* merely on the basis of whether a transitive or intransitive verb is to be formed. *Pa'al* being neutral with respect to transitivity does not help either. Since transitivity cannot be very useful in determining verbalization of triliteral nouns, one has to resort to the meaning groups within the *binyanim*. The picture that emerges somewhat resembles the one introduced at the beginning of the paper, with certain changes and further specifications.

3.1.2.1. Intransitive Denominative Triliterals

Inchoatives-over-colours, i.e. 'become colour', and inchoatives-over-physical-human-qualities, i.e. 'acquiring a particular physical (human) quality', are realized in *hif'il*. This was a typical *hif'il* characteristic in Biblical Hebrew already—cf. *hilbin* 'become white' etc. Innovations follow an existing semantic group, then:

(7)	*hivrid*	'become pink'	(cf. *varod* 'pink')
	hišxim	'become brown, tanned'	(cf. *šaxum* 'brown, tanned')
	hišmin	'become fat'	(cf. *šamen* 'fat')
	hirza	'become thin'	(cf. *raze* 'thin')

The last two are recent colloquial innovations, replacing literary *pa'al* counterparts, *šamen* and *raza* respectively. Since no recent inchoatives have been realized in *nif'al*, probably owing to the almost-zero productivity of *pa'al*, to which *nif'al* is often related, all other recent inchoatives and ingressives denoting 'change-of-state', 'becoming', etc., are realized in *hitpa'el*, e.g.:

(8)	*yadid*	'friend'	>	*hityaded*	'befriend, become friendly'
	pēger	'cadavre'	>	*hitpager*	'die'
	šavac	'heart attack'	>	*hištavec*	'have a heart attack'
	xatix	'good looking'	>	*hitxatex*	'become handsome'

In *hitpa'el* are also realized all middle-voice counterparts of transitive verbs realized in *pi'el*, including reflexive, inchoative or reciprochal actions:

(9)	*me+rkaz*	'center'	>	*hitrakez*	'concentrate, int' ~ *rikez* 'concentrate (tr.)'
	mamaš	'real, reality'	>	*hitmameš*	'be realized, become a reality' ~ *mimeš* 'realize (tr.)'
	zā(y)in	'penis'	>	*hizdaynu*	'they engaged in coitus' ~ *ziyen* '"lay" (a woman)'

Other intransitive verbs, i.e. non-inchoative (or non-ingressive), non-reflexive, non-reciprocal, etc., are realized in *pi'el*, which is the unmarked *binyan* for innovations. Thus,

(10)	*blof*	'bluff, lie (N)'	>	*bilef*	'lie'
	kūter	'cat, one who complains like a cat'	>	*kiter*	'complain'
	nījes	'a nag'	>	*nijez*	'nag'
	koxav	'star (N)'	>	*kixev*	'star'

As we saw above, the same also applies to quadriliteral roots or quintiliteral ones that could not be realized in *hiʃʾil* for phonetic reasons, but which would have been pronounceable in *hitpaʾel*:

(11) *taʃkid* 'job, function' > *tiʃked* 'function'
xantariš 'nonsense' > *xintreš* 'speak nonsense'

**hitʃkid* and **hixntriš* would not have been prounceable, but **hittaʃked* and **hitxantreš* are. Semantically, however, they do not belong in *hitpaʾel*.

3.1.2.2. Transitive Denominative Triliterals

Note that whereas for quadriliteral nouns, owing to problems of pronounceability, transitive realization was normally in *piʾel*, the realization of triliteral nouns as transitive verbs is more of a problem, since both *piʾel* and *hiʃʾil* may be transitive. Furthermore, transitive verbalizations in both *binyanim* may have a causative sense; and in deriving verbs from nouns and adjectives, one expects to find lots of causatives.

One of the common causative uses of *hiʃʾil* is 'cause somebody to DO something', e.g.

(12) *rakad* 'dance' ~ *hirkid* 'cause (somebody) to dance'
yašav 'sit down' ~ *hošiv* 'cause (somebody) to sit down'
kaʃac 'jump' ~ *hikpic* 'cause (somebody) to jump'

To form new causatives of this type, one would usually take some existing verb, normally realized in *paʾal* or sometimes in *niʃʾal* (see Ariel (1972) in Appendix I), and have it realized in *hiʃʾil*:

(13) *taram* 'contribute' ~ *hitrim* 'cause (somebody) to contribute'
ʾazav 'leave' ~ *heʾeziv* 'make (somebody) quit (slang)'
dahar 'gallop' ~ *hidhir* 'make (a horse) gallop'
xatam 'sign' ~ *hextim* 'have (somebody) sign'

Since, however, we are dealing with new verbs derived from nouns or adjectives, such causatives are irrelevant to this paper.

On the other hand, we ARE interested in existing denominative *hiʃʾil* verbs with the causative-over-inchoative meaning 'cause to become N/Adj.', like:

(14) *mélex* 'king' > *himlix* 'make (someone) king'
gadol 'big' > *higdil* 'make (something) big'
xalaš 'weak' > *hexliš* 'make (someone) weak'

Interestingly enough, although one finds many existing causatives in *piʾel* which also mean 'cause to become Adj.', like

(15) *xazak* 'strong' > *xizek* 'strengthen (tr.)'
kacar 'short' > *kicer* 'shorten (tr.)'
xam 'hot' > *ximen* 'heat'

recently-formed denominative causatives meaning 'cause to become N/Adj.', or 'make into N/Adj.' (i.e. causatives-over-inchoatives) indicate preference for *hiʃʾil*:

(16)	*xariʃ*	'sharp'	>	*hexriʃ*	'sharpen (tr.)'
	muxaši	'real, tangible	>	*himxiš*	'make real, tangible'
	nicxi	'eternal'	>	*hinciax*	'eternalize'
	taʃel	'tasteless, without salt'	>	*hitpil*	'desalinate'
	kveč	'very soft (slang)'	>	*hikvič*[10]	'squeeze, cause to be very soft (child speech)'
	maxaze	'play'	>	*himxiz*	'he made (novel, etc.) into a play'
	pnim	'inside (N)'	>	*hiʃnim*	'he internalized'

Also, one observes tendencies in children to shift denominative causatives of this type from *piʾel* into *hiʃʾil* (the first is heard in sub-standard adult speech as well):

(17)	*kerev*	'draw (something) nearer'	>	*hikriv* (cf. *karov* 'near')
	kiʾer	'make (someone) ugly'	>	*hixʾir* (cf. *mexoar* 'ugly')

If the notion 'causative' is restricted to 'cause to BECOME', i.e. causatives-over-inchoatives, and 'cause (someone) to DO something' (like *hirkid* 'cause to dance' etc.), then all non-causative transitive triliteral nouns and adjectives are realized in *piʾel*. I cannot tell, however, whether this generalization is captured as such, or speakers follow more specific semantic categorization extracted from groups of verbs within *piʾel*, like 'put, place in N', as in (18i), or 'use, or bring about use of N', as in (18ii):

(18)	(i) *makom*	'place'	>	*mikem*	'put in place'
	moked	'focus (N)'	>	*miked*	'focus'
	ʾamud	'page'	>	*ʾimed*	'arrange in pages'
	šuk	'market (N)'	>	*šivek*	'market'
	tik	'file (N)'	>	*tiyek*	'file'
	bama	'stage'	>	*biyem*	'stage (a play)'
	(ii) *gēšer*	'bridge (N)'	>	*gišer*	'bridge (a gap)'
	mexona	'machine'	>	*miken*	'mechanize'
	vasat	'regulator'	>	*viset*	'regulate'
	mamon	'money'	>	*mimen*	'finance'
	mokeš	'mine (N)'	>	*mikeš*	'mine'
	griz	'grease (N)'	>	*gerez*	'grease'
	zāyin	'penis'	>	*ziyen*	'"lay" (a woman)'
	dēgel	'flag'	>	*digel*	'present arms (like flag)'

[10]Ora Schwarzwald also reports having heard *kiveč* and *kivčeč* from *kveč* [personal communication].

(18) cont.

yâ'ar	'wood'	>	*yi'er*	'cover with trees'
bul	'stamp'[11]	>	*biyel*	'stamp (envelope)'
'iš	'man (N)'	>	*'iyeš*	'man'
'ot	'letter'	>	*'iyet*	'spelled'

and so on. Most other transitive denominative verbs which do not (or are hard to) classify into semantic groups are also realized in *pi'el*, which again emerges as the unmarked *binyan*. Thus:

(19) *pizm+on*	'tune'	>	*pizem*	'hum a tune'
navat	'navigator'	>	*nivet*	'navigate'
nativ	'trail, route'	>	*nitev*	'mark trail, route'
xuga	'dial (N)'	>	*xiyeg*	'dial'
sêmel	'symbol'	>	*simel*	'symbolize'
dûax/dox	'report (N)'	>	*divêax*	'report'
vaday	'certain'	>	*vide*	'validate'

3.1.3. Occupied Slots

Besides the above considerations, possible realizations are checked against existing items, and if the slot concerned is already occupied, the innovator normally chooses the semantically-closest *binyan* in which the slot is still free. Thus, for instance, the adjectives *pašut* 'simple' and *matun* 'moderate' can not be realized as causative-over-inchoative verbs in *hif'il*, as predicted from the procedure above, since there already exist *hif'il* realizations for both of these roots—*hifšit* 'take off (someone's) clothes' and *himtin* 'wait'. The innovator resorts to the other transitive *binyan*, *pi'el*: *pišet* 'simplify', *miten* 'cause to be moderate'.

Sometimes the occupied-slot consideration coincides with the semantic choice of *binayn*. For instance, *nêcax* 'eternity' is realized as *hincîax* 'eternalize' because in *pi'el*, *nicêax* is an existing item meaning 'win, conduct', and *tafel* 'tasteless, without salt' becomes *hitpil* 'desalinate' because of the existence of *tipel* 'take care (of somebody)'; at the same time, both are assigned to *hif'il* by virtue of being causative.

3.1.4. Additional Phonological Factors

3.1.4.1. Glides as Second Radicals in *hif'il*

In addition to the unpronounceability of most quadriliterals (and longer) nouns in *binyanim* other than *pi'el*, *pu'al* and *hitpa'el*, there are also language-particular restrictions on certain sequences of consonants which force choice of one *binyan* over another. Thus, a

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[11] The fact that *bul*, *'iš* and *'ot* are realized with glides indicates that they are conceived as originating from 'defective' roots in which the glides are not realized in certain environments. Ruth Berman comments [personal communication] that derivations like *bul* > *biyel* being so common in spite of their apparent opacity to the native speaker proves that "defective" glides are still viable in the morphology of Modern Hebrew.

noun like *xayal* 'soldier' would be expected to be realized as a *hiʃʔil* causative, but since except for one word, *hexya* 'he revived', Hebrew glides are not realized as second radical in *hiʃʔil*, *y* would be expected to delete, as it normally does in *hiʃʔil*: the *hiʃʔil* realization of the root *k-w-m* is *hekim* 'raise', that of *b-y-n*: *hevin* 'understand', and so on. The form *hexil*, however, is already occupied ('cause to apply' or 'hope', or even 'contain', if the orthography is ignored), and furthermore, the original noun *xayal* would hardly be recognized. So the other transitive *binyan* is chosen, and we get *xiyel* 'he mobilized, enlisted'.

Note that realization of biliteral nouns as transitive verbs in *piʔel* rather than *hiʃʔil* can partly be explained by the same constraint. In those cases where *y* is introduced, like *tik* > *tiyek*, *ʔot* > *ʔiyet*, that *y* will be unacceptable in *hiʃʔil*, for the same reason that **hixyil* was ruled out, and if that *y* were NOT introduced, the resulting *hiʃʔil* forms would have been confused with forms with deleted /n/, e.g. /hinpil/ 'he caused to fall' > *hipil*. Could it be said, then, that all biliteral nouns (also *sûk* > *šivek* and *dûax* > *diveax*, where historical *w* is realized as *v*) are automatically realized in *piʔel* for that reason? It may very well be true, if the requirement for deletion of glides as second radicals in *hiʃʔil* can be firmly established. The existence of *hexya* above and *hexvir* 'become pale', from *xiver* 'pale' (*v* originating from historical *w*) indicate, however, that this requirement is not absolute. Note again that these "defective" glides are not as opaque as generally assumed to be (see Berman's comment, footnote 11).

3.1.4.2. No Stem-Geminates

One would have expected *mamaši* 'real' > *himmiš*, but Hebrew, though permitting geminates across morpheme-boundary, does not allow them stem-internally. Instead, we get *mimeš* 'realized, tr.', then.

3.1.5. Sporadic Analogies

It sometimes happens that a certain noun or adjective is verbalized in some *binyan*, and then another two or three nouns of the same semantic field follow, even though the meaning relationship is not precisely the same (or has specialized in some unexpected manner). Thus *maxaze* 'play' > *himxiz* 'he made (novel, etc.) into a play', which was realized in *hiʃʔil* by virtue of being a true causative, probably[11] triggered *sêret* 'movie' > *hisrit* 'he shot, or projected, a movie' and *lâxan* 'tune' > *hilxin* 'he composed a tune'. It seems to me that **siret* (or **seret*) and **lixen* would have been chosen if not for the analogy with the realization of *maxaze* as *himxiz*, since they are not causatives semantically.

3.1.6. Preserving the Structure of the Original Noun/Adjective

Earlier it was noted that quadriliteral (or longer) nouns are not always necessarily realized in *piʔel* (or *puʔal* or *hitpaʔel*, for that matter). Generally they ARE realized in *piʔel* (or *puʔal*, or *hitpaʔel*), since realization in *hiʃʔil* is often quite unpronounceable, owing to the stem-initial consonant cluster characteristic of *hiʃʔil*, *niʃʔal*, and the Future of *paʔal*. Note, however, that among recent verbalizations, one finds at least two quadriliterals that are realized in *hiʃʔil*:

(20)	*špric*	'squirt'	>	*hišpric*	'he squirted'
	švuŋg	'impetus (colloq)'	>	*hišviŋg*	'he ran very fast'

[12]To the best of my knowledge, *himxiz* indeed preceded both *hisrit* and *hilxin*. However, since ALL of the three are innovations, I have not been able to verify this yet.

This happens in spite of the second being intransitive and the first non-causative transitive (with an underlying object).

The reason is quite simple: *pi'el*, i.e. **šiprec* and **šiveŋg*, would have broken the consonant clusters of the original nouns and rendered them unrecognizable. Yet innovation prefers the origin of the denominative verb to be as transparent as possible, and since consonants are essential for recognition of meaning (the original vowels are gone away—replaced by the *binyan* vowels), breaking consonant clusters is avoided if possible. Thus, original VOWELS can freely be deleted—for instance, *tilʃen* 'he telephoned' gets rid of extra vowels in the source noun *têleʃon* without seriously affecting its recognition, but the *špr* cluster of consonants in *špric* remains unaffected. Obviously, the stem-*i* of *hiʃ'il* makes it even easier to recognize *špric* in *hišpric*, but preserving the original vowel is not that essential. Note that in a sense, the reluctance to break clusters in *špric* and *švuŋg* can be interpreted as assignment to biliteral roots: *špr*-c and *šv*-ŋg.

Similarly, we have some triliteral nouns recently verbalized in *hiʃ'il* where *pi'el* realization would have been expected:

(21)	*ʃlik*	'blow'	>	*hiʃlik*	'give a blow'
	šmir	'blow'	>	*hišmir*	'give a blow'
	ʃloc	'fart (N)'	>	*hiʃlic*	'fart'
	švic	'bragging'	>	*hišvic*	'brag'

The first two are non-causative transitive, and the other two intransitive. Obviously realization in *hiʃ'il* is intended to keep the original consonant sequences of the source-nouns as transparent as possible.

At least for borrowed words, then, we have a tendency on the part of innovators to preserve the relationship between nouns and verbs derived from them, so as to have a kind of paradigmatic uniformity across syntactic categories. This tendency may even result in morphological processes affecting a *binyan* so as to allow preservation of original consonant clusters. Thus, since *ʃlirt* 'flirt' cannot be realized as **hiʃlirt* (because according to the procedure for quadriliteral intransitives outlined above it does not belong there and because—except for *hišviŋg*, where ŋg is conceived as a single segment—verb-stems cannot end with a cluster of two consonants), it can only be realized in *pi'el*. However, since realization as **ʃilret* would obliterate the original clustering of consonants in the noun, the innovator resorted to reduplication of the last consonant and sticking the stem-final vowel in between the two identical consonants—*ʃlirtet* 'flirt (V)'. Thus he avoided a *hiʃ'il* realization and at the same time managed to preserve the original noun intact. Reduplication is an accepted device in Hebrew, used largely to express diminution—both in the verb system, for instance *cixkek* 'giggle' vs. *caxak* 'laugh', and elsewhere (*varod* 'pink' vs. *vradrad* 'pinkish'). Indeed, *ʃlirtet* may be interpreted as some sort of diminutive—but I suspect that this interpretation did not trigger its formation: **ʃilret* would have been diminutive as well, 'flirt' in itself being a diminutive of 'making love'. In other words, it was the need to preserve *ʃlirt* that caused reduplication, and the diminutive interpretation is redundant.

That the diminutive interpretation is not the triggering factor in such cases can be proved by similar reduplication cases involving triliteral nouns (no other recent verbalizations involving nouns like *ʃlirt* are available):

(22)	*siʃra*	'digit'	>	*siʃrer*	'assign digits'

toxnit	'plan'	>	*tixnen*[13]	'plan'
boks	'box'	>	*hitbokses*	'box (with someone) (slang)'
kurs	'course'	>	*hitkarses*	'take a course (slang)'
kunc	'trick'	>	*kincec*	'play a trick (literary, rather rare)'

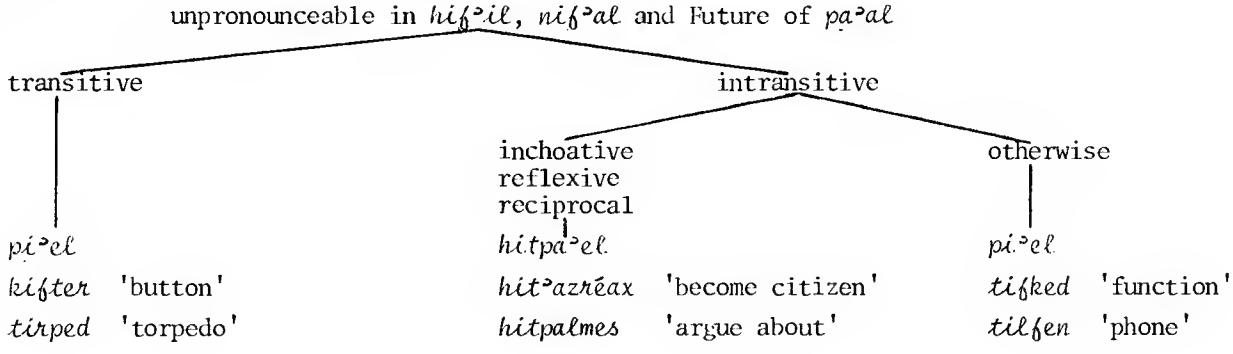
Except for the literary *kincec*, perhaps, no diminutive sense is implied. It might be argued that normal *pi'el* realization would not have been possible because of occupied slots—*siper* and *tiken* respectively (the second radical of *pi'el* is normally *p*, *b*, *k* rather than *f*, *v*, *x*); still, **bikes*, **keres* and **kinec* would have been "free" for the realization of *boks*, *kurs* and *kunc* respectively.

Reduplication is quite productive in the language (cf. Bolozky (1972)).[14] Among denominative verbs, however, the number of reduplication cases is quite limited. It is impossible, however, to evaluate the significance of this fact, since verbalized nouns with initial and final consonant clusters are not at all common in Hebrew, and all (or most) of those that exist do preserve the original consonant clusters. Is this significant or accidental? It seems that the best way to test it would be by productivity tests.

3.2. A Proposal for a Verbalization Hierarchy

To sum up the picture that emerges from recent verbalization of nouns and adjectives, the following general diagram might be suggested:

(23)



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[13] *tixnet* has a different meaning—'he programmed'. *+it* in *toxnit* is a suffix.

[14] Especially for colour terms and a few other adjectives, meaning '... ish', as in:

kaxol	'blue'	> *kxalxal*	'bluish'
yarok	'green'	> *yerakrak*	'greenish'
šamen	'fat'	> *šmanman*	'fattish'

for diminution in animal words, as in:

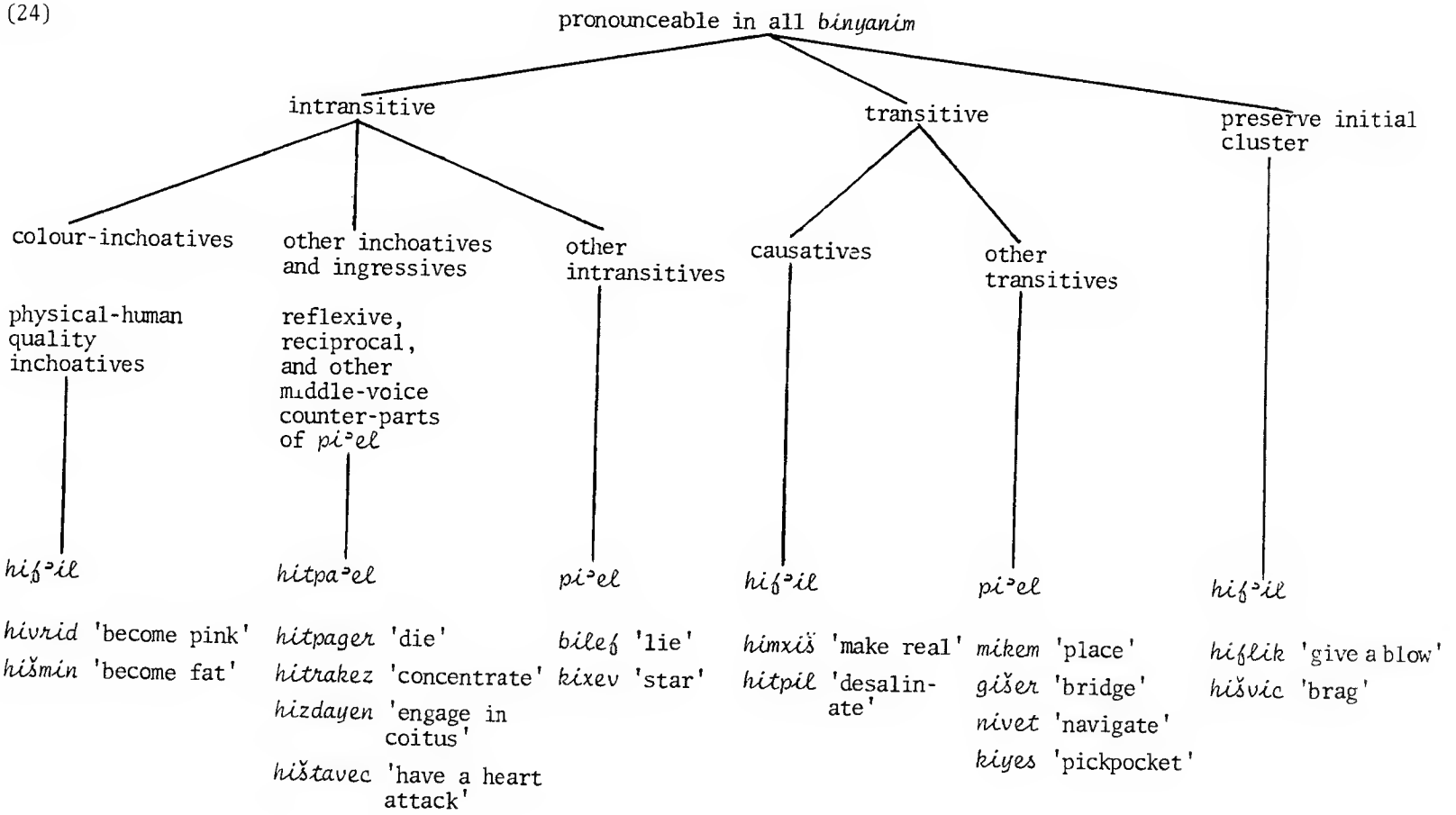
kelev	'dog'	> *klavlav*	'doggy'
xatul	'cat'	> *xataltul*	'kitten'

for some verbs, especially onomatopoeic:

cilcel	'ring'	> *zimzem*	'buzz'

and so on.

(24)


pronounceable in all binyanim
intransitive
transitive
preserve initial cluster
colour-inchoatives
other inchoatives and ingressives
other intransitives
causatives
other transitives
physical-human quality inchoatives
reflexive, reciprocal, and other middle-voice counter-parts of pi'el
hif'il
hitpa'el
pi'el
hif'il
pi'el
hif'il
hivrid 'become pink'
hišmin 'become fat'
hitpager 'die'
hitrakez 'concentrate'
hizdayen 'engage in coitus'
hištavec 'have a heart attack'
bilef 'lie'
kixev 'star'
himxiš 'make real'
hitpil 'desalinate'
mikem 'place'
gišer 'bridge'
nivet 'navigate'
kiyes 'pickpocket'
hiflik 'give a blow'
hišvic 'brag'

(25) Unordered factors, applying whenever applicable:

(i) Avoid unpronounceable sequences, or sequences disallowed in Hebrew

(ii) Avoid "occupied" slots

(iii) If possible, preserve original consonant sequences of source N/Adj.

(26) Sporadic factor—analogy with some limited semantic group

(27) Automatic derivation:

(i) transitive *piʾel* > *puʾal*

kiʃter	'button'	>	*kuʃtar*	'be buttoned'
mikem	'place'	>	*mukam*	'be placed'

(ii) transitive *hifʿil* > *hufʿal*

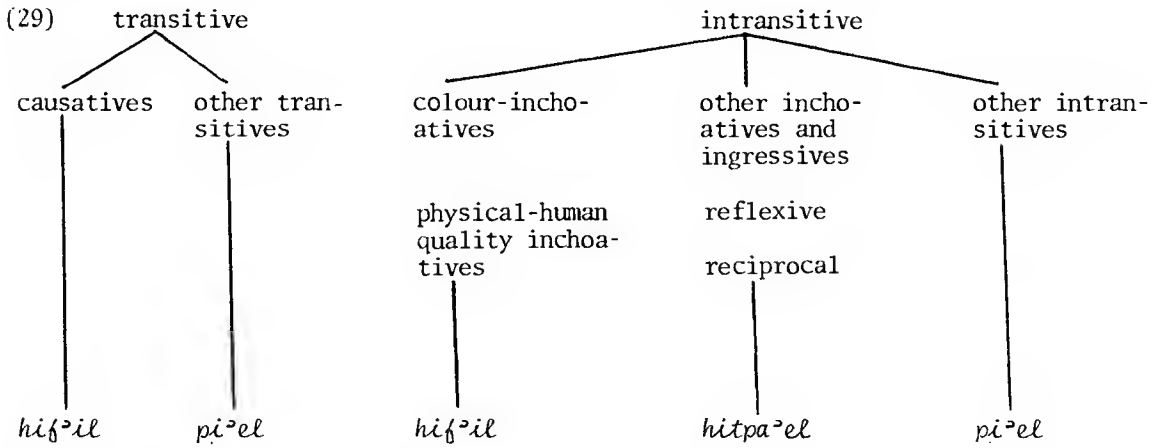
himxiš	'make real'	>	*humxaš*	'be made real'
hitpil	'desalinate'	>	*hutpal*	'be desalinated'

(28) Frequent derivation: transitive *piʿel* > middle voice in *hitpaʿel*

rikez	'concentrate (tr.)'	>	*hitrakez*	'concentrate (int.)'
mimeš	'realize (tr.)'	>	*hitmameš*	'realize (int.)'

Note that since the unordered factors do not have to be included in the diagram, the section for "unpronounceable in *hifʿil*" can be dispensed with. The branching in it is identical to the "pronounceable in all *binyanim*" diagram—with *hifʿil* and the cluster-preservation branch excluded. (25i), however, will automatically exclude unpronounceable realization in the former and (25iii) will take care of the latter. (23) and (24) can be collapsed into (29), then (since derivation of middle-voice *hitpaʿel* from transitive *piʿel* is also almost automatic, reference to middle voice is unnecessary as well):

(29)



4. PRODUCTIVITY TESTS OF VERBALIZATION OF NOUNS AND ADJECTIVES

To find out whether trends emerging from recent denominative verbs are still productive, four productivity tests were run with fifty native Hebrew-speaking participants (most of whom were students at teacher training colleges) for each type of test.

4.1. TESTS ISOLATING THE SYNTACTIC AND SEMANTIC FACTORS

The first two tests were constructed in such a way as to (hopefully) exclude the phonetic and clash-with-existing-items factors, in an attempt to single out the semantic and syntactic considerations. The nouns selected were triconsonantal, and contained no consonant clusters that might cause reduplication or use of extended patterns. Furthermore, they were almost all non-native, to avoid the otherwise-almost-unavoidable clash with already existing, or at least possible, forms—though it is inconceivable, of course, that one would be able to COMPLETELY avoid any sort of interference by association, or sporadic analogy with some existing verb or some small group of verbs. The first test was supposed to invoke "active" formation of denominative verbs; to represent the innovator's point of view, subjects were given only the noun and target meaning of the verb it should be realized as. The second was intended to represent the more "passive" acceptance and rejection by the speech community of proposed innovations: various verbalized forms of the same noun were suggested (in addition to the noun and target meaning), and subjects were asked to choose the one that will best characterize the given meaning. Although the best testing method would have probably been exclusively oral throughout, the need to simultaneously propose alternative realizations for each item in the second test made it quite impractical. To avoid interference of spelling considerations as much as possible, and still maintain a uniform method for the two tests, nouns and given meanings were introduced orally, but the answers proposed in test II (subjects were asked to re-write their choice) and subjects' own formations in test I were all in writing. A few subjects were given a sample of test I as intended, and a few days later a sample of the same test conducted orally throughout, and the results showed no significant difference.

In test I, the nouns were read aloud, paraphrased target meanings were suggested (translated in table I), and subjects were asked to fill in their suggested realization for corresponding verbs in very short sentence frames prepared beforehand (cf. Appendix II), with complete representation of diacritic vowel marks.[15] Given meanings related to the same noun were not consecutively ordered (they are in the table, for convenience). No strict time limit was set, but reading of nouns was not repeated at request.

The same method was used in test II, except that below each of the prepared sentence-frames a few alternative verbal realizations were proposed (in Hebrew script). These forms were also read aloud, but subjects could see them all at the same time.

The number of subjects was always fifty, though the total of answers was often less than fifty, owing to subjects' inability to make a decision in some cases. The numbers in the table are doubled to give percentages. To save space, the results of test II are incorporated in brackets in the table for test I.

[15] It took some time to explain that one should not worry about certain distinctions among the diacritical vowel marks which no longer have a distinctive phonetic function in Modern Hebrew. Subjects were told that they could use, for instance, either *kamac* or *patax* (both of which stand for *a*) as long as they used ONE.

Results of Tests I and II

No.	Noun, Meaning/Target-Meaning		CiCeC, including ʾi+CCeC	hi+CCiC	hit+CaCeC	ni+CCaC or CaCaC
1	*šēriʃ*	'sheriff'/'he made him a sheriff'	*šireʃ* 20 (16) *ʾišreʃ* 6	*hišriʃ* 72 (82)		(*šaraʃ*-2)
2	*šēriʃ*	'sheriff'/'he became a sheriff'		*hišriʃ* 4	*hištareʃ* 90 (100)	
3	*šēriʃ*	'sheriff'/'he made himself, proclaimed himself, sheriff'			*hištareʃ*[16] 100	
4	*šēriʃ*	'sheriff'/'he served as sheriff'	*šireʃ* 74 (68)	*hišriʃ* 6 (10)	*hištareʃ* 16 (20)	(*šaraʃ*-2)
5	*vasal*	'vassal'/'he made someone a vassal'	*visel* 40 (48)	*hivsil* 60 (52)		
6	*vasal*	'vassal'/'he became a vassal'		*hivsil* 2 (2)	*hitvasel* 94 (98)	*nivsal* 2
7	*vasal*	'vassal'/'he lived as a vassal'	*visel* 70 (82)		*hitvasel* 24 (18)	
8	*salōni*	'an armchair revolutionary' (from *salon* 'parlour')'/'he caused someone to become an armchair revolutionary'	*silen* 34 (30)	*hislin* 66 (70)		
9	*salōni*	as above /'he became an armchair revolutionary'		*hislin* 2 (4)	*histalen* 94 (96)	*nislan* 4
10	*salōni*	as above /'he spoke like an armchair revolutionary'	*silen* 56 (52)	*hislin* 2 (6)	*histalen* 36 (42)	
11	*panel*	'panel'/'he covered with panels'	*pinel* 68 (76)	*hifnil* 30 (24)		
12	*kēres*	'hook'/'he fitted with a hook'	*keres* 66 (70)	*hikris* 30 (30)		

[16]Most subjects explained afterwards that they would have preferred a causative verb plus a reflexive pronoun, i.e. *hišriʃ ʾet ʾacmo* 'he made sheriff (of) himself', but since the instructions called for single-word verbs, they had to resort to *hitpaʾel*.

I was not able to find a colour or physical-human-quality triliteral non-native word to see whether it would tend to be realized in *hiʃʔil*; otherwise the results roughly confirm the findings summarized above for recent verbalizations. Thus, causatives (i.e. examples 1, 5, 8) are realized in *hiʃʔil* more often than in *piʔel*—although this is obviously not a universal trend, which might indicate that with *piʔel* having become a base form, it is more productive even for this type of causative than what actually emerges from recent verbalizations. Other transitives are realized in *piʔel*, as is illustrated by 11 and 12. Intransitive inchoatives, other ingressives and reflexives are realized in *hitpaʔel* with almost no exceptions (cf. 2, 3, 6, 9), and other intransitives in *piʔel* (cf. 4, 7, 10), though here it might be that *hitpaʔel* is more productive for these other intransitives than what emerges from recent verbalizations.

The results of Test II were not different from those of the first test in any significant way—except for a STRONGER tendency in most cases towards forms already preferred in the previous test, probably since exposure to it strengthens the subject's confidence in the appropriateness of the choice. One case where the tendency weakened was the causative realization of *vasal*. I think that the stronger preference for *visel* here (which incidentally is my own choice too) is due to a certain preference for *piʔel* realization of literary nouns.

4.2. TESTS INVOLVING INITIAL AND FINAL CONSONANT CLUSTERS

Testing whether pronounceability would in fact cause most quadriliterals to go into *piʔel* was trivial. Obviously, if a verb simply could not be pronounced in *hiʃʔil*, it would go into *piʔel* or *hitpaʔel*. In the third test, then, the nouns used contained three or more consonants with clusters in initial and/or final position, which phonetically could be realized in either *piʔel*, *hitpaʔel* or *hiʃʔil*. The idea was to check three things: (a) whether the choice of *binyan* as established in the two previous tests may be affected in any way so as to allow preservation of the original clusters; (b) whether within a *binyan*, variants preserving original clusters would have preference; and (c) whether the restriction noted above on stem-final clusters in the verb (i.e. that a stem-final consonant cannot be expanded into a cluster, e.g. *torpēdo* > **hitripd*) would be maintained even when original clusters are involved.

The fourth test was, again, the same as the third, except that alternative forms were suggested as verbalizations of given nouns and given meanings, and speakers were asked to choose rather than "create". The assumption was, once more, that the "active" test would reflect innovative capacity while the "passive" one would recreate the normal situation of speakers hearing innovations and rejecting or accepting them by intuition.

The Results of test IV are incorporated in the table for test III below, in brackets.

Results of Tests III and IV

No.	Noun, Meaning/ Target Meaning	% of CiCeC and extensions	Distribution of CiCeC forms	*hi*+CCiC	% of *hit*+CaCeC and extensions	Distribution of *hit*+CaCeC forms
1	*snob* 'snob'/'he made him snobbish'	40 (36)	*sineb* 10 (12) *snobeb* 12 (22) *sinbeb* 6 (2) *ʾisneb* 12	*hisnib* 60 (64)		
2	*snob* 'snob'/'he became snobbish'				92 (98)	*histaneb* 44 (36) *histnobeb* 6 (14) *hitsnobeb* 22 (38) *histnabeb* 4 (4) *hitsnabeb* 16 (6)
3	*talk* 'talcum powder'/'he sprayed with talcum powder (transitive)'	72 (82)	*tilek* 26 (20) *tilkek* 46 (62)	*hitlik* 28 (18)		
4	*marks* 'Marx'/'he "Marxicized" somebody'	90 (98)	*mirkes* 28 (18) *mirkses* 62 (80)	*himriks* 8 (2)		
5	*marks* 'Marx'/ 'he became a Marxist'				100 (100)	*hitmarkes* 24 (18) *hitmarkses* 76 (82)
6	*patent* 'patent'/ 'he registered as patent (transitive)'	100 (100)	*pitnet* 44 (32) *pitent* 56 (68)			
7	*šmalc* 'schmaltz'/ 'he made something schmaltzy'	36 (40)	*šimlec* 6 (8) *šimelc* 2 *šmilcec* 28 (32)	*hišmilc* 64 (60)		
8	*šmalc* 'schmaltz'/ 'it became schmaltzy'				96 (100)	*hištamlec* 22 (20) *hištmalcec* 8 (8) *hitšmalcec* 66 (72)
9	*zbeŋg* 'blow'/ 'he gave a blow (intransitive)'	32 (28)	*zibeŋg* 12 *zbiŋgeg* 20 (28)	*hizbiŋg* 66 (72)		
10	*ʾasfalt* 'asphalt'/'he covered with asphalt (transitive)'	96 (100)	*ʾisflet* 8 (2) *ʾisfelt* 88 (98)	*hisfilt* 4		
11	*sport* 'sport'/ 'he dealt with sport	68 (56)	*sipret* 2 (2) *spirtet* 10 (4) *sportet* 56 (50)		32 (44)	*histapret* 4 *hitspartet* 4 (4) *histportet* 2 (4) *hitsportet* 22 (36)

The findings of this test do seem to indicate that the desire to preserve the original consonant clusters of the source noun is indeed a significant factor, but that speakers tend to try to find ways of maintaining it without disturbing the general procedure for *binyan* choice outlined above.

The most obvious way of doing this is, indeed, by introducing reduplication in *pi'el*. Thus, since 3 is not a causative-over-inchoative, realization as *tilkek* leaves it in *pi'el*, where it belongs, without breaking the *lk* cluster, or rather the whole *tVlk* pattern. Similarly, *hitšmalcec* in 8 and *sportet* in 11 preserve the structure of *šmalc* and *sport*, respectively, and are still realized in *hitpa'el* and *pi'el* respectively, the former being inchoative and the latter a non-inchoative non-reflexive intransitive. *Hitlik*, *hišmilc* and *hispirt* would have also preserved the original clusters, but as long as the speaker can find a way out, the basic procedure will normally prevail. Also, in all cases of *pi'el* and *hitpa'el* realizations except for 2, reduplicated forms OUTNUMBER others, since they can preserve the original without forcing a shift from one *binyan* to another. Another way, though not as common, of preserving original clusters in *pi'el* is by using the extended *'if'el* form, e.g. *'isneb*, *'išmelc*. It goes without saying that if the *binyan* chosen in the normal procedure preserves the structure of the noun without requiring reduplication, it will have preference over forms in other *binyanim* which also preserve that form—*hisnib* over *snobeb* and *'isneb*, in 1, *hišmilc* over *šmilcec* in 7 (both causatives-over-inchoatives) and *'isfelt* over *hisfelt* (non-causative transitive)—and obviously over forms in the same *binyan* that do not preserve the structure of the noun—*pitent* over *pitnet*, *'isfelt* over *'isflet*.

Another finding: the constraint that disallows expansion of a stem-final consonant into a cluster may be violated in order to maintain the normal procedure of *binyan* choice; thus, *hišmilc* is preferred to *šmilcec*. Furthermore, we already noted that within the same *binyan*, structure-preserving clusters have preference even in stem-final position (see *pitent* and *'isfelt* above).

Reduplication in *pi'el* is not the only new device, than; clusters may be preserved by simply allowing stem-final clusters, which is another significant change from recent innovations to our productivity test (except for *hišving*—cf. footnote 6).

Another way in which clusters are preserved in the test for which we have no evidence in recent innovations is the blocking of *hitpa'el* metathesis in certain cases. *Hitpa'el* metathesis, which metathesizes the *t* of the *hitpa'el* prefix with a following coronal obstruent (e.g. *hit+saper* 'have a haircut' > *histaper*) may be blocked in the process of verbalization in order to preserve a stem-initial cluster: *šmalc* is realized as *hitšmalcec* oftener than *hištmalcec* or *hištamlec*, *sport* is realized as *hitsportet* oftener than any metathesized variant, and so on.

Each of these devices helps the innovator preserve the structure of the original noun without necessarily violating the established procedure for verbalization.

Concerning *hizbing*, the normal procedure is violated here; as an intransitive verb, it should have been realized in *hitpa'el* or *pi'el*. It appears, however, that we are dealing here with a case of "sporadic analogy", which is quite obvious to any speaker of Hebrew, with the two recent derivations mentioned in (21) above:

flik	'blow'	>	*hiflik*	'give a blow'
šmir	'blow'	>	*hišmir*	'give a blow'

which themselves may have been formed in analogy to native *hirbic* 'give blows'.

It seems to me that although it was preservation of original clusters that motivated forms like *hišpric*, *hiflik* or *hišvic* being chosen as realizations of *špric*, *flik* and *švic* respectively, the third productivity test shows that switching to a different *binyan* to achieve this is not as likely any more if it involves deviation from the general procedure. In other words, it is possible that when *špric* etc. were realized as verbs, the general procedure was violated, but now that speakers are aware of other devices for preserving clusters, like reduplication in *pi'el*, they will not deviate from the general procedure if they can avoid it.

A final point: Ora Schwarzwald pointed out to me (personal communication), that except for *sport*, initial clusters show significant preference for *hif'il*. I still feel, however, that although this seems to indicate priority of cluster-preservation over syntactic and semantic choice, the fact that all cases concerned function as causatives is not accidental, and that the behaviour of *sport* is the proof.

The results of test IV were again not significantly different from those of the "active" test, except that as in test II, most forms preferred in test III were supported even further, and that reduplication constituted a higher percentage of the cases, since some speakers were not aware of its potential unless they were actually reminded of it.

4.3. VARIATIONS IN HIERARCHY

Re-examination of the results of the four tests, primarily the less decided cases, where there was no clear predominance of one *binyan*, suggests that it may be possible to attribute the DISTRIBUTION of forms to some systematic strategies. For instance, when 60-70 percent of the speakers opted for *hif'il* realizaiton for causatives, the same 25 participants were consistent in making this choice throughout, and when *pi'el* was chosen for the same proposed meanings, in roughly 25-40 percent of the cases, 15 speakers were consistent in all cases but two (counting all four tests). Similarly, when 50-80 percent opted for non-inchoative non-reflexive non-habitual non-reciprocal intransitive realization in *pi'el*, 32 speakers were consistent about it in all cases but four, and most of the rest (15 except for four cases) consistently preferred *hitpa'el*. A similar conclusion could be drawn from realization of non-causative transitives in *pi'el* (66%-100%—30 speakers consistent) or *hif'il* (roughly 20%-30% except two cases—9 speakers consistent in all but two cases).

Since a considerable degree of consistency among speakers is involved even when the results show a clear split, it is very possible that there exist systematic differences in word-formation strategies among speakers of Hebrew. It was suggested to me by Yael Ziv (personal communication) that perhaps speakers differ systematically in some rearrangement or simplification of the hierarchy in (29) above. Interestingly enough, all the 15 speakers who were consistent in choosing *pi'el* for causatives were among the 30 opting for *pi'el* for non-causative transitives, and the 15 who preferred *hitpa'el* for non-inchoative (etc.) intransitives were all included among those realizing inchoative (etc.) intransitives in *hitpa'el*. In other words, it seems that for some speakers, the TRANSITIVE branch of the hierarchy was simplified to a single *pi'el* branch, and that for another group the INTRANSITIVE branch got simplified by one branch. The two fifteen-speaker groups overlap only partly (ten out of fifteen) which means that each of these simplifications could either be dependent on, or independent of, each other. Still, one could probably speak of something like "dialectal variation" in verb-formation strategies in Modern Hebrew.

5. CONCLUSION

It was shown here that the process of verbalization of nouns and adjectives is a complex one, involving syntactic, semantic and phonological considerations and requiring various global considerations. A verbalization-hierarchy of these factors was proposed on the basis of recent innovations, and was supported by means of productivity tests. It was claimed that although new strategies were introduced, they have not destroyed the essentially-semantic and syntactic base of the traditional theory of verb-formation, but rather built on it within its framework. It was also suggested that for some speakers, the system of verb-formation may be somewhat simplified.

APPENDIX I

SOME RECENT LITERATURE ON THE REALIZATION OF ROOTS IN THE DIFFERENT BINYANIM

A modern linguistic approach to *binyan* selection was attempted in Ariel (1972). His contribution lies primarily in providing a more precise definition of some of the relationships among realizations of roots in different *binyanim*, and in emphasizing the notion of change-of-state (ingressive, in his terminology) in capturing these relationships. Thus, he comments on the fact that *niʃʔal* often expresses change-of-state from *paʔal*, for instance *neʔemad* 'he stood up' vs. *ʔamad* 'he was standing', and that the *hiʃʔil* counterparts of the same *niʃʔal* forms will be corresponding causatives, for instance *heʔemid* 'he made (somebody) stand'. He further comments on the fact that *hitpaʔel* forms often indicate change-of-state from adjectives, for instance *hitkacer* 'it shortened' from *kacar* 'short', and that corresponding *piʔel* forms, like *kicer* 'he shortened' in our case (and obviously *kucar*, the *puʔal* form), are almost automatic.

Berman's (1975 a and b) attempt is considerably more comprehensive. Having examined all possible realizations of listed verbal roots, she establishes that the approximations of school grammars are generally supported, except for a few, though rather important, changes. She reaffirms the "independent" syntactic functions of the *binyanim* as specified above, except that *paʔal* is NOT the only base form—*piʔel* also is, since there are many *piʔel* verbs that do not have *paʔal* counterparts and certainly would not be derived from *paʔal* or from any other conjugation, and also because *piʔel* is very productive in innovations. With regard to semantic characteristics of groups of verbs realized in certain *binyanim*, her findings again confirm some of the specialized meaning-groups above, except that she would further classify some of them; for instance, change-of-state in *niʃʔal* is subdivided into change-of-state regular verbs—*neʔecar* 'stopped' and change-of-state copular verbs—*nehefax* 'became'. Also, she would add new groups and change ordering in terms of frequency; for instance, in *piʔel*, she would add a group of causatives, like *ximem* 'he warmed', and would give it preference over the "intensified *paʔal*" group.

A piece of work concerned essentially with productivity, that is, describing innovations rather than classifying all existing lexical items, is Sivan's (1963) doctoral dissertation. It is full of interesting information, but has one serious shortcoming: except for a few occasions, it does not distinguish between colloquial and literary innovations. This would not have been so problematic, had the literary illustrations been reasonably accepted in everyday usage; the difficulty is, that is some cases, primarily in the less productive *binyanim*, the majority of forms are the inventions of a particular writer which nobody else ever uses, and which in some cases are not even understood by anyone else. I do agree with some of his observations, particularly with *piʔel* becoming the most productive *binyan*, but not with the mixing of levels in some of his data.

Sivan is the only one to consider non-semantic factors, primarily phonetic, phonological and orthographic, in verb-formation. He claims, for instance, that the traditionally-basic

paʾal is no longer productive, not because most of its slots are "occupied", but because its unmarked past form is represented orthographically by consonants only, and contains no affixes (e.g. *kašar* 'tie' as *k-š-r*, *sagar* 'close' as *s-g-r*). The unmarked past form of *piʾel* does not contain suffixes either, but in Modern Hebrew orthography is represented with the sign *y*, which stands for either *y* or *i* (only *a* and *e* are NEVER represented in the modern orthography), which appeals to innovators. Sivan believes that innovators are heavily influenced by spelling, and that they prefer forms with distinguishing marks (such as affixes or vowels represented by glides in the orthography), partly because they themselves notice them more easily, but more importantly—because they wish readers to pronounce them as intended. They would use *paʾal* only in poetry, since in poetry the vowels are fully represented by diacritics. But notice that Sivan's argumentation here revolves around the written language, and even if he had the spoken language in mind, he still considers its representation in writing to crucially determine the choice of the *binyan*.

Concerning the amazing productivity of *piʾel*, and normally related *puʾal* and *hitpaʾel* forms, as against other *binyan* patterns that do contain affixed and orthographically-represented vowels, Sivan's explanation is phonological. Quadriliteral roots—which in general were quite scarce in pre-Modern Hebrew—could only be realized in *piʾel*, *puʾal*, or *hitpaʾel* when expanded into CiCCeC, CuCCaC and *hit*+CaCCeC respectively. Furthermore, there existed a group of verbs in these *binyanim*, in which the first radical was reduplicated so as to begin the final syllable of the stem, e.g. *gilgel* 'he rolled (tr.)' (from the root *g-l-l*), *gulgal* 'it was rolled', *hitgalgel* 'it rolled (int.)'. Quadriliteral realizations were also formed with the increased productivity of the derivational prefix #šV+, which was ALSO restricted to these three *binyanim* only, the result being *šiCCeC* (*šiʾbed* 'he enslaved'), *šuCCaC* (*šuʾbad* 'he was enslaved'), *hišta*CCeC (after metathesis; *hištaʾbed* 'he became a slave'). Whether the reason was reduplication or increased prefixation, or because the root was quadriliteral to start with, the way was opened for further incorporation of quadriliteral roots in *piʾel*, *puʾal* and *hitpaʾel*. In Modern Hebrew this trend considerably extended, particularly owing to the formation of a few more quadriliteral "sub-*binyanim*" in the three *binyanim* concerned: *ʾi*+CCeC (*ʾivxen* 'diagnosed'), *ti*+CCeC (*tidlek* 'he fuelled') etc. (I mention *piʾel* only, but in most transitive *piʾel* cases, realization of the other two *binyanim* is also implied). So whether an actual fourth radical was involved, or a derivational affix was re-interpreted as part of the stem rather than as a *binyan* affix, the three *binyanim* concerned were partly reconstructed to allow four stem-consonants, and since these *binyanim* are the only ones allowing four consonants in the stem, they are naturally preferred when a noun containing more than three consonants is involved.

It is interesting, however, that Sivan fails to explain WHY four radicals could be possible in *piʾel* in the first place. There might be semantic reasons for each of the particular cases, but there are also systematic PHONOLOGICAL explanations. First, Pre-Modern quadriliterals were realized in *piʾel*, *puʾal* and *hitpaʾel* in analogy to the (now lost) gemination of the second radical of these conjugations, e.g. *tirgem* 'translate' based on *dibber* 'talk', etc. Furthermore, as pointed out in 3.1.1 above, the disyllabic structure of *piʾel*, *puʾal* and *hitpaʾel* stems can accommodate more consonants than can the monosyllabic stems of *hifʾil* and the future of *paʾal*.

Concerning the question of why *piʾel* is more productive than *hifʾil*, Sivan suggests, correctly, that denominative verbs tend to preserve the original form of the noun as far as possible. His argument is that the prefix *hi* of *hifʾil* would tend to obscure that form more than the *piʾel* vowels do. As shown in this paper, the principle is valid, but I think the explanation here is weak—primarily because, as Sivan himself admits, *hifʾil* sometimes preserves the original form of the noun in the best possible way, as in words like *hišpric* 'squirt', *hišvic* 'brag', *hiflik* 'hit', where the source nouns are *špric* 'squirt', *švic* 'bragging', and *flik* 'a blow' respectively.

APPENDIX II

SENTENCE FRAMES FOR TESTS I AND II (Proposed forms for test II in brackets)

1. *hu* _____ *ʾoto bekōax* 'he made him sheriff by force (forced him to become sheriff)'
   (*šireɡ hišriɡ šaraɡ nišraɡ hištareɡ*)

6. *haʾikar* _____ *bekōrax hansibot* 'the farmer became a vassal due to circumstances'
   (*vasal hitvasel visel nivsal hivsil*)

11. *hu* _____ *ʾet hakir* 'he covered the wall with panels'
   (*panal hitpanel hifnil pinel nifnal*)

5. *bāʾal haʾaxuza* _____ *ʾet haʾikar* 'the lord made the farmer a vassal'
   (*hitvasel vasal hivsil visel nivsal*)

9. *bemešex hazman hu* _____ 'with the time he became an armchair revolutionary'
   (*silen hislin salan histalen nislan*)

3. *hu* _____ *becura lo xukit* 'he illegally proclaimed himself sheriff'
   (*šaraɡ nišraɡ šireɡ hišriɡ hištareɡ*)

7. *hu* _____ *baʾaxuza šel habaron ʾarbaʾim šana* 'he served as vassal at the baron's estate for forty years'
   (*hitvasel nivsal visel vasal hivsil*)

8. *hansibot* _____ *ʾoto* 'circumstances made him an armchair revolutionary'
   (*salan histalen nislan hislin silen*)

2. *hu* _____ *lifney šnatayim* 'he became sheriff two years ago'
   (*nišraɡ hištareɡ šaraɡ hišriɡ šireɡ*)

12. *hu* _____ *ʾet haxaka* 'he fitted the fishing rod with a hook'
   (*keres karas hikris hitkares nikras*)

10. *hu* _____ *kol haʾērev* 'he spoke revolutionary-style all evening'
   (*salan nislan silen histalen hislin*)

4. *hu* _____ *betēksas ad moto* 'he served as sheriff in Texas till his death'
   (*hišriɡ šaraɡ nišraɡ hištareɡ šireɡ*)

SENTENCE FRAMES FOR TESTS III AND IV (Proposed forms for test IV—in brackets. Very unlikely suggestions, like *hitpa'el* forms for transitive realizations, or *pi'el* forms for inchoative verbs, were not proposed).

1. *hama'amad haxadaš šelo* _____ *'oto legâmre* 'his new status made him utterly snobbish'
   (*sanab hisnib sineb snobeb sinbeb*)

3. *hu* _____ *'et haraglâyim šelo* 'he sprayed his feet with talcum powder'
   (*talak tilek tilkek hitlik*)

8. *hašir* _____ 'the song became schmaltzy'
   (*šamalc hištamlec nišmalc hitšmalcec hišmilc*)

9. *hu* _____ *lo bekôax* 'he hit him (intransitive) with force'
   (*zibeŋg zabaŋg hizbiŋg zbiŋgeg*)

2. *hu* _____ *legâmre* 'he became utterly snobbish'
   (*nisnab histaneb histnobeb sanab hitsnabeb hitsnobeb histnabeb*)

4. *hu* _____ *'et xâyim* 'he "Marxicized" Chayim'
   (*himriks mireks mirkes mirkses maraks*)

10. *hu* _____ *'et hakviš* 'he covered the road with asphalt ("asphalted" the road)'
    (*'isfelt hisfilt 'isflet*)

6. *hu* _____ *'et hahamca'a* 'he registered the invention as patent ("patented" the invention)'
   (*hiftint pitnet pitent*)

5. *hu* _____ *kvar mizman* 'he became a Marksist long ago'
   (*hitmarkes hitmarkses hitmareks nimraks*)

7. *hu* _____ *'et hasêfer* 'he made the book schmaltzy'
   (*šamalc šimlec šmilcec šimelc hišmilc*)

11. *hu* _____ *kol hayom* 'he dealt with sport all day'
    (*sipret histapret spirtet histportet sportet hitsportet hitspartet histpartet*)

REFERENCES

Ariel, Shlomo. 1972. "The function of the conjugations in colloquial Israeli Hebrew." *Bulletin of the School of Oriental and African Studies* 35:514-30.

Berman (Aronson), Ruth. 1975a. "Lexical representation of verbs, roots and conjugations [in Hebrew]." In U. Ornan and B. Fischler (eds.), *The Rosen Book*, pp. 25-36. Jerusalem.

Berman (Aronson), Ruth. 1975b. "The morphological realization of syntactic processes in the Modern Hebrew verb system [in Hebrew]." *Hebrew Computational Linguistics*, 9, pp. 25-39. Bar-Ilan University. Israel.

Bolozky, S. 1972. "Categorial limitations on rules in the phonology of Modern Hebrew." Doctoral dissertation, University of Illinois.

Cole, P. 1976. "A causative construction in Modern Hebrew: theoretical implications." In P. Cole (ed.), *Studies in Modern Hebrew Syntax and Semantics*, pp. 231-47. Amsterdam: North Holland Publishing Co.

Ornan, Uzzi. 1971. "Hebrew grammar." *Encyclopoedia Judaica*, Vol. 8, pp. 77-175. Jerusalem: Keter.

Schwarzwald, Ora. 1975. "Comments on root-patterns relations in the Hebrew Lexicon." [in Hebrew]." *Hebrew Computational Linguistics* 9, pp. 47-59. Bar-Ilan University. Israel.

Sivan, Reuven. 1963. "Patterns and trends of linguistic innovations in Modern Hebrew—general introduction and part I—the Verb [in Hebrew]." Doctoral dissertation, Hebrew University.

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This study focuses attention on a particular type of documents from the Ur III period which record fit gifts of silver rings to various individuals. These texts are analyzed as a structural type, i.e. as a part of a specific archive and in relationship to similar gift texts from other contemporary governmental offices. It is proposed that these gifts were part of a greeting ceremony. An investigation of offices located at Drehem which processed various goods encountered in gift texts leads to proposals on the administrative role and function of ancient Puzriš-Dagan.

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A catalog of some 239 figurines from the late third millennium occupation at Tell al'Abd in Syria, in the flood area of the Tabqa dam, partly stratified and partly from the surface. While no chronological seriation can be established, a typological classification distinguishes different groups of objects by ware and by representational categories. There are 77 human figurines, 138 animal figurines, and 24 cart fragments or wheels. Comparisons with published and unpublished materials from other sites are offered, as are interpretations on the function of the various types of figurines. A total of 117 examples is reproduced in half-tone photographs.

Issue 5: As'ad Mahmoud, *Terqa Preliminary Reports, No. 5: Die Industrie der islamischen Keramik aus der zweiten Season*, 16 pp., 4 plates, $2.35.

A pottery kiln for glazing ceramics was found during the second season of excavations in 1976 at Terqa, modern-day Ashara. It was situated to the south of the tell, just outside the perimeter of the ancient city. Numerous ceramic vessels, glazed and unglazed, were found in or near the kiln. All of these finds may be dated to the twelfth century A.D., in the Ayyubid period.

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